Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of Sections 68.104 and	)	CC Docket No. 88-57
68.213 of the Commission's Rules	)	
Concerning Connection of	)	
Simple Inside Wiring	)	
to the Telephone Network	)	
	)	
and	)	
	)	
Petition for Modification of	)	RM-5643
Section 68.213 of the Commission's	)	
Rules filed by the Electronic	)	
Industries Association	)	
	)	

THIRD REPORT AND ORDER

Adopted: December 21, 1999 **Released: January 10, 2000**

By the Commission:

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I. INTRODUCTION

1. Part 68 of the Commission's Rules governs the interconnection of customer premises telecommunications terminal equipment and its associated wiring with the public switched telecommunications network ("PSTN" or "network").[1] Part 68 sets standards to ensure that the connection of such customer premises equipment (CPE) to the PSTN will not cause harm to the network,[2] such as electrical hazards to telephone company personnel and equipment, malfunctioning of billing equipment, and the degradation of telecommunications services to third parties.[3] In addition, Part 68 contains rules designed to ensure that persons with hearing aids are afforded reasonable access to the telephone network.[4]

[1] 47 C.F.R. § 68.1.

[2] *See* In the Matter of Proposals for New and Revised Classes of Interstate and Foreign Message Toll Telephone Service (MTS) and Wide Area Telephone Service (WATS), *First Report and Order*, 56 F.C.C. 2d 593 (1975) (*First R&O*). For an early history of Part 68, *see* Proposals for New or Revised Classes of Interstate and Foreign Message Toll Telephone Service ("MTS") and Wide Area Telephone Service ("WATS"); Revision of Part 68 of the Commission's Rules to Specify Standard Plugs and Jacks for the Connection of Telephone Equipment of the Nationwide Telephone Network; and Amendment of Part 68 of the Commission's Rules ("Telephone Equipment Registration") to Specify Standards for and Means of Connection of Telephone Equipment to Lamp and/or Annunciator Functions of Systems, *Memorandum Opinion and Order*, Docket Nos. 19528, 20774, 21182, 70 FCC 2d 1800 (1979).

[3] Network harm occurs when persons other than the user of the subject terminal equipment and that user's calling or called party suffer service degradation. 47 C.F.R. § 68.3. The Order establishing the Part 68 program identified four areas of potential harm that may arise as a consequence of permitting the uncontrolled direct connection of telecommunications equipment to the telecommunications network: (1) hazardous voltages, (2) excessive signal power levels, (3) excessive longitudinal imbalance, and (4) improper network control signaling. *First R&O*, 56 F.C.C. 2d at 602.

[4] 47 C.F.R. § 68.1.

2. In 1984, the Commission adopted section 68.213 of the rules to permit telecommunications subscribers and premises owners to install and connect telecommunications equipment and inside wiring to the PSTN.[5] The term "inside wiring" describes wiring installations located on the customer premises side of the demarcation point.[6] The demarcation point is the interface point between the PSTN and the inside wiring, and is the juncture at which the telecommunications carrier's responsibilities end and the customer's control begins.[7] Inside wiring connects CPE to the PSTN and to other CPE. Simple inside wiring refers to wiring installations of up to four lines in residential or business telephone service.[8] Complex inside wiring refers to wiring installations that exceed four subscriber access lines.[9]

3. Recently, in the *Advanced Services* proceeding, we took action to promote the deployment of broadband services to consumers and small businesses.[10] The *Advanced Services* proceeding, however, focused on the deployment of advanced services through the local loop, to the customer's demarcation point.[11] Bringing broadband capability to the customer's demarcation point is for naught, however, if customers cannot rely on the availability of quality inside wiring to connect their CPE to the demarcation point. Thus, in this action, we examine the potentially deleterious effect of poor quality inside wiring on advanced services, as well as on

[5] 47 C.F.R. § 68.213. *See* Petitions Seeking Amendment of Part 68 of the Commission's Rules Concerning Connection of Telephone Equipment, Systems, and Protective Apparatus to the Telephone Network, *Report and Order*, CC Docket No. 81-216, 97 FCC 2d 527, 527 (1984); *stay denied*, *Order*, FCC No. 84-564, released Nov. 20, 1984, *recon. granted in part*, Section 68.213 Reconsideration Order, 50 Fed. Reg. 29384 (1985) (*1985 Order*); *see also* In the Matter of Review of Sections 68.104 and 68.213 of the Commission's Rules Concerning Connection of Simple Inside Wiring to the Telephone Network and Petition for Modification of Section 68.213 of the Commission's Rules filed by the Electronic Industries Association, *Report and Order and Further Notice of Proposed Rulemaking*, CC Docket No. 88-57, 5 FCC Rcd 4686 (1990) (*1990 Order*), *stay denied*, Order, 5 FCC Rcd 5228 (Com. Car. Bur. 1990).

[6] 47 C.F.R. § 68.3.

[7] Specifically, the Commission added a demarcation point definition to section 68.3, stating that the demarcation point is "located on the subscriber's side of the telephone company's protector, or the equivalent . . . where a protector is not employed, as provided under the local telephone company's reasonable and non-discriminatory standard operating practices." *1985 Order*, 97 FCC 2d at 566. The telephone company protector is a device designed to protect equipment, buildings, and persons by preventing the transmission of hazardous voltages through the telephone line. Hazardous voltages can result from lightning or power surges.

[8] 47 C.F.R. § 68.213(a).

[9] 47 C.F.R. § 68.215.

[10] *See* Deployment of Wireline services Offering Advanced Telecommunications Capability, *Third Report and Order*, CC Docket No. 98-147, and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, *Fourth Report and Order*, CC Docket No. 96-98, FCC 99-355, (Adopted Nov. 19, 1999), at para. 4 ("we adopt measures to promote the availability of competitive broadband . . . services, especially to residential and small business customers).

[11] The local loop is defined as the transmission facility between a distribution frame (or its equivalent) in an incumbent LEC central office and the loop demarcation point at an end-user customer premises, including inside wire owned by the incumbent LEC. 47 U.S.C. § 51.319(a)(1).

traditional voiceband services, and establish minimum inside wiring quality standards to ensure that consumer utility of those services will not be hampered by poor quality inside wiring.

4. Specifically, in this *Third Report and Order* we amend the rules to establish quality standards for inside wiring, to promote the availability of quality telecommunications facilities that will not frustrate consumer access to existing and advanced telecommunications services. We anticipate that in the future, industry will assume greater responsibility for the further elaboration of inside wiring quality standards to the extent necessary. We also affirm the gold or gold equivalent standard for connectors, and decline to (1) designate schools and hospitals as multiunit structures, (2) establish requirements compelling notification of building owners and tenants with respect to additional network protectors, and (3) establish a standard time period for carrier responses to customer requests for inside wiring information. We have recently concluded a series of three technical fora, examining potential strategic and policy choices for Part 68.[12] We note that in response to these fora, we may undertake a substantial initiative to further privatize the Part 68 program.

II. BACKGROUND

5. In 1990, the Commission issued an *Order and FNPRM* that revised the definition of "demarcation point" to ensure customer access to carrier-installed inside wiring, and proposed rules to enable customers to connect up to four access lines directly to the PSTN. Eleven petitions for reconsideration and/or clarification,[13] and one late-filed petition to intervene[14] were filed in response to the *1990 Order and FNPRM*, and numerous comments were filed in response to those petitions.[15] In addition, the Building Industry Consulting

[12] Common Carrier Bureau Will Hold Fora on Deregulation/Privatization of Equipment Registration and Telephone Network Connection Rules, *Public Notice*, CC Docket No. 99-216, DA 99-1108, rel. June 10, 1999.

[13] Petitions were filed by AT&T, Bell Atlantic, BellSouth, the State of California and the Public Utilities Commission of the State of California (CAPUC), Cincinnati Bell Telephone Company (Cincinnati Bell), GTE Service Corporation (GTE), NYNEX, Pacific Bell, Southwestern Bell Telephone Company (SBC), the User Premises Equipment Division of the Telecommunications Industry Association (TIA), and US West Communications (US West).

[14] On Oct. 13, 1992, the Building Owners and Managers Association of Pittsburgh, Inc. (BOMA) filed a petition "(1) To Intervene in Rulemaking Proceedings and (2) for a Declaratory Judgement that Rule 68.213 Does Not Apply to Inside Wiring in High Rise Multi-Tenant Buildings, or (3) For the Amendment or Repeal of FCC Rule 68.213." In the Matter of Review of Sections 68.104 and 68.213 of the Commission's Rules Concerning Connection of Simple Inside Wiring to the Telephone Network and Petition for Modification of Section 68.213 of the Commission's Rules filed by the Electronic Industries Association, *Order on Reconsideration, Second Report and Order and Second Further Notice of Proposed Rulemaking*, CC Docket No. 88-57, RM-5643, 12 FCC Rcd 11897, 11900 n.6 (1997) (*1997 Rulemaking*).

[15] Comments were filed by AT&T, the Ameritech Operating Companies (Ameritech), Bell Atlantic, BellSouth, BOMA, BICSI, Central Telephone Company (Central), GTE, Independent Data Communications Manufacturers Association, Inc. (IDCMA), MFS Communications (MFS), NYNEX, North American Telecommunications Association (NATA), Pacific Bell, Southern New England Telephone Company (SNET), SBC, TIA, United States Telephone Association (USTA), the United Telephone System companies (UTS), Utilities Telecommunications Council (UTC), and US West. The Commission also received numerous letters from individual BOMA chapters and letters of support for the BOMA petition from individual building owners, managers, and others.

Service International (BICSI) filed a petition for rulemaking requesting that the Commission adopt quality standards for simple inside wiring.[16]

6. The Commission responded to those petitions and comments in the *1997 Rulemaking*.[17] In that action, the Commission amended the demarcation point definition to: (1) clarify that the demarcation point may be located within twelve inches of the point at which the wiring enters the customer's premises, or as close as otherwise practicable; (2) indicate that only major additions or rearrangements of existing wiring are to be treated as new installations under the rule; (3) allow owners of multiunit buildings to restrict customer access to wiring located within the customer's individual unit; and (4) require local telephone companies to supply customers with information about their inside wiring. Finally, the Commission included with the *1997 Rulemaking* a *Second Further Notice of Proposed Rulemaking* requesting comment on proposed modifications to the demarcation point rule, BICSI's proposed enhanced wire quality standards, and the gold or gold equivalent standard.[18]

7. Numerous comments, reply comments, and *ex parte* comments were filed in response to the *1997 Rulemaking*, addressing the Commission's inquiries regarding its demarcation point definition, the adoption of inside wire quality standards, and the Commission's gold and gold equivalence standard. Two petitions for clarification and reconsideration were also filed in response to issues discussed on reconsideration in the *1997 Rulemaking*. One petition requested that the Commission clarify that its rules do not authorize unilateral changes to demarcation point location.[19] The other petition requested that the Commission clarify that it intended to give only prospective effect to its interpretation of the demarcation point definition in the *1997 Rulemaking*.[20]

8. In a separate proceeding,[21] we are considering how we can facilitate the development of telecommunications networks providing competitive alternatives to local services supplied by incumbent wireline local exchange carriers (LECs). In particular, the *Competitive Networks Notice* proposes actions to ensure that competitive network providers will have reasonable and non-discriminatory access to buildings, rooftops, and facilities in multiunit premises for the purpose of providing telecommunications services through wireline and wireless transmission systems. The scope of the review of the demarcation point rules that we

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[16] *See* Petition for Expedited Rulemaking, filed August 22, 1995 (*BICSI Petition*).

[17] *1997 Rulemaking*, 12 FCC Rcd at 11897.

[18] *Id.*

[19] BellSouth petition at 3-4.

[20] Bell Atlantic petition at 2.

[21] Promotion of Competitive Networks in Local Telecommunications Markets, WT Docket No. 99-217; Wireless Communications Association International, Inc., Petition for Rulemaking to Amend Section 1.4000 of the Commission's Rules to Preempt Restrictions on Subscriber Premises Reception or Transmission Antennas Designed To Provide Fixed Wireless Services; Cellular Telecommunications Industry Association Petition for Rule Making and Amendment of the Commission's Rules to Preempt State and Local Imposition of Discriminatory and/or Excessive Taxes and Assessments: Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No. 96-98, *Notice of Proposed Rulemaking and Notice of Inquiry in WT Docket No. 99-217, and Third Further Notice of Proposed Rulemaking in CC Docket No. 96-98*, FCC 99-141, (rel. July 7, 1999) (*Competitive Networks Notice*).

undertake in the *Competitive Networks* proceeding encompasses the demarcation point issues that remain open in this docket. Consequently, we defer further consideration of demarcation point issues, including the two petitions for clarification and reconsideration remaining open in this proceeding, to the *Competitive Networks* proceeding.

III. DISCUSSION

A. Inside Wiring Quality Standard

9. We adopt material standards for copper, twisted pair wire used in new, simple inside wiring installations. We introduce this standard into our regulations to identify a "standard industry practice." Our intention in this action is to encourage builders to install quality inside wiring to ensure that consumers will continue to have access to widely available communications services. This action will also benefit consumers as carriers deploy broadband systems that are more demanding on inside wiring than traditional voice telecommunications services. For instance, broadband transmission systems operate at higher power levels and utilize a greater frequency range than traditional voice services, placing additional demands on the inside wiring. Poor quality inside wiring can substantially degrade the performance of these high-powered or sensitive broadband technologies, and can cause problems in telephone lines that are installed nearby.[22] Thus, the use of adequate quality inside wiring becomes even more important as broadband technology becomes more widely deployed in residential and small business installations. As a result, this action will benefit consumers and small businesses using legacy voice telecommunications services as well as those seeking to access broadband services.

10. We envision that consumers may enforce this rule by prosecuting claims against builders and contractors that have utilized inferior wiring in new construction.[23] For example, an aggrieved consumer or building owner, beset by problems caused by poor quality inside wire, may make a civil claim against a builder or contractor for breach of implied warranty of merchantability or fitness for a particular purpose. We also anticipate that telecommunications wiring standards will be adopted by building industry organizations, and reflected in local building codes.[24]

11. As noted in the *1997 Rulemaking*, BICSI has filed a petition requesting that we amend section 68.213(c) to require that inside wiring "[c]onductors shall be solid, 24 gauge or larger, twisted copper pairs [marked to indicate compliance with] the electrical specifications for Category 3 or higher as defined in the ANSI/EIA/TIA Building Wiring Standards."[25] In the *1997 Rulemaking*, the Commission sought comment on BICSI's proposed inside wiring quality standard. In addition, the Commission sought comment describing how the use of poor quality wiring in one building might affect service in other buildings and asked whether BICSI's

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[22] For instance, the higher electrical energy levels associated with broadband transmission can cause interference in adjacent telephone lines, resulting in audible static during voice telephone communications and slowing or preventing broadband data transmissions.

[23] *See North Carolina Utilities Comm'n v. FCC*, 552 F.2d 1036 (4th Circ. 1977), ("the FCC has jurisdiction to prescribe the conditions under which terminal equipment may be interconnected with the interstate telephone line network"), *cert. denied*, 434 U.S. 874, 98 S.Ct. 222, 54 L.Ed.2d 154 (1977);).

[24] *See infra* paras. 17-18.

[25] *1997 Rulemaking*, 12 FCC Rcd at 11927-28.

proposed copper only requirement is overly restrictive. The Commission proposed adopting the BICSI petition as a two-year interim standard, so that during the tenure of the interim standard the industry could work together to develop a voluntary inside wiring standard, and sought comment identifying the appropriate industry body or bodies to develop that voluntary industry standard. Finally, the Commission requested comment describing the most appropriate wire markings and marking intervals.[26]

12. Commenters responding to the Commission's inquiries agree that poor-quality, non-twisted pair inside wiring can cause network harm in the form of "cross-talk,"[27] resulting in a loss of privacy, interference with digital transmission, and disruption of telephone conversations.[28] Commenters state that cross-talk is likely to occur in homes and small businesses utilizing simple inside wiring configurations in which poor quality wires serving multiple telephones are bundled together. Commenters contend that the use of poor quality inside wiring in new installations is growing, creating a nationwide cross-talk problem.[29] Commenters also state that cross-talk caused by poor quality building wire can affect telephone service in other buildings and that third-party and network harm could occur between adjacent buildings as well as among parties in the same structure.[30]

13. Commenters state that the presence of inferior wiring may not be immediately apparent to homeowners and homebuyers, since the potential for future problems may be difficult to detect. Symptoms such

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[26] *Id.* at 11928.

[27] Cross-talk is the undesired capacitive, inductive, or conductive coupling from one circuit, part of a circuit, or channel, to another. Cross-talk also describes any phenomenon by which a signal transmitted on one circuit or channel of a transmission system creates an undesired effect in another circuit or channel. In telephony, cross-talk is usually distinguishable as speech or signaling tones, and often results from the use of poor quality wiring. *Id.* at 11927.

[28] Bell Atlantic/NYNEX comments, Attachment A ("Intelligible cross-talk eliminates the privacy associated with telephone conversations."); BellSouth Memorandum in Support of Proposed Rule Changes in CC Docket 88-57, Apr. 28. 1998 (*BellSouth Ex Parte*), Affidavit of John R. Gunter; Cable Services International (CSI); United Homeowners Association (UHA) comments at 1 (UHA is a non-profit organization representing 65 million American homeowners); Letter from BellSouth, GTE, Pacific Telesis, and NYNEX to Chairman Hundt and Commissioners Ness, Chong, and Quello, FCC (Oct. 28, 1996).

[29] Over 90,000 Bell South customers currently experience cross-talk, and the continuing installation of poor quality inside wiring, the "exponential increase" in second line installations, and the rollout of high frequency services such as ISDN is causing this figure to rise. Letter from Ben G. Almond, BellSouth, to William F. Caton, FCC, dated October 21, 1997 (*BellSouth October 21 ex parte*); BICSI petition at 2; UHA comments at 1.

[30] CSI comments at 1 ("[f]irst, we believe that cross-talk caused by poor wiring originating in building A can affect the transmission quality between building A and building B even if building B has high quality wire installed).; *see also* 47 C.F.R. § 68.3 (network harm includes "degradation of service to persons other than the user of the subject terminal equipment, his calling or called party"). Bell Atlantic/NYNEX doubts that the use of poor quality inside wiring in one building will significantly affect service in another building, but notes that poor inside wiring in one building can, and generally does affect individual calls to other buildings. Bell Atlantic/NYNEX comments at 5, Attachment A (demonstrating that when two callers in a building with poor quality wiring (i.e. non-twisted pair conductors in multiple-pair cables) simultaneously call third parties, cross-talk interference may occur and may be discernable by some or all of the parties to the calls). BICSI states that cross-talk between adjacent buildings is theoretically possible, although unlikely. BICSI comments at 5.

as cross-talk may not emerge until additional telephone lines or new services are added to the premises wiring. Commenters note that these additions may not be made for a substantial amount of time after installation of the original, sub-standard inside wiring.[31] Commenters also state that once a problem is discovered, homeowners often must rewire the affected premises to rectify the problem,[32] at a cost substantially higher than the cost of initially installing wire comporting with BICSI's proposed standards.[33]

14. Commenters and petitioners explain that a primary cause of this troublesome situation is that the simple inside wiring market does not function correctly because homebuyers are shut out of the inside wire selection process.[34] They argue that building contractors and developers generally select telecommunications wire long before the homebuyer has entered the picture, and that this situation allows builders to prioritize lower cost over quality when purchasing wire to be used for simple inside wiring.[35] Commenters further explain that when homeowners become aware of the problem, such as when they attempt to install an additional line or experience audible cross-talk, it is often too late to seek reparations from the builder or contractor.[36] Thus, commenters and petitioners argue that since the "purchasing entity," in this case the builder or contractor, is not held accountable for the problems caused by its least-cost-based decision, market forces will not protect the consumer's interest in quality inside wiring and that the Commission must establish a wire quality standard to correct this market malfunction.[37]

15. Commenters note a number of additional factors that contribute to the problems associated with poor-quality inside wiring. For example, commenters state that a building's use and users generally change through a building's "lifespan,"[38] and that it is not uncommon for a single-family home to be later converted to a professional office or a multi-tenant dwelling.[39] Moreover, there has been an exponential increase in the installation of additional lines to accommodate Internet, fax, and voice traffic in residential and mixed-use structures.[40] These factors increase the likelihood that inferior wiring will lead to communications problems that

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[31] BICSI comments at 2.

[32] *Id.*

[33] Replacement of inside wiring can cost $1,000 or more. *Id.* TIA comments at 4; BICSI comments at 2 (noting that in some cases, the original, sub-standard wiring could not be replaced, and new, good quality wire had to remain exposed).

[34] "If a builder installs sub-standard wire, the user is not likely to experience cross-talk until the homeowner decides to link a second access line. . . . [T]hat point may not occur until years after the initial installation, when it is too late for the homeowner to secure corrective action from the builder." *BellSouth Ex Parte* at 12; BICSI petition at 5.

[35] *BellSouth Ex Parte* at 12; BICSI comments at 3.

[36] *BellSouth Ex Parte* at 12, 22; BICSI comments at 3; UHA comments at 1.

[37] *BellSouth Ex Parte* at 12.

[38] TIA comments at 2-3.

[39] *Id.*

can only be resolved by installing good-quality wire to replace the poor quality wire used in the original construction. Arguing that in these circumstances, it is all too often the homeowner who "foots the bill" to correct the problems created by the building contractor's poor choice of wire,[41] commenters and petitioners claim that these problems can be minimized, at least with respect to new installations, if we adopt inside wiring quality standards sufficient to protect basic telephony service.[42]

16. We agree with commenters and petitioners that poor quality inside wiring can cause cross-talk, disrupting basic telephone service and causing network harm. We find that it is in the public interest to adopt inside wiring quality standards in order to protect consumers and the PSTN from such harm. We find that BICSI's proposed inside wiring quality standard is a reasonable means by which to accomplish this task. We anticipate that consumers will benefit from the establishment of an inside wire quality standard for new simple wiring installations. Thus, we amend section 68.213(c) of the Commission's rules to adopt enhanced wire quality standards for simple inside wiring. Specifically, we require that copper inside wiring installed 180 days after the date of this Order's publication in the Federal Register, shall be, at a minimum, solid, 24 gauge or thicker, twisted pairs, marked to indicate compliance with the electrical specifications for Category 3, as defined in the ANSI/EIA/TIA Building Wiring Standards. Inside wiring material exceeding the minimum requirements specified in section 68.213(c) as amended by this *Order* may be used and should be marked to indicate those characteristics.

17. In the *1997 Rulemaking*, the Commission asked if the BICSI proposal is overly restrictive because it would require that only copper wire may be used. In response, commenters attest that the BICSI proposal, including the copper-only standard, is not overly restrictive, as copper is the most commonly used medium that suffers from cross-talk problems.[43] Commenters also agree that they are not aware of current telephone wire or wire standards that do not use or specify copper-conductor material,[44] that the Commission's Part 68 inside wiring rules only address copper transmission medium, and that cross-talk only seems to be an issue with copper wire installations.[45] In addition, commenters predict that copper conductor will remain the norm for

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[40] Bell Atlantic/NYNEX comments at 5; BellSouth Ex Parte at 13, 22.

[41] UHA comments at 1.

[42] *Id.* at 12-13; CSI comments at 1, 5; BellSouth Comments at 2 (citing Public Notice, Part 68 Plug/Jack and Wiring Attestation Lists No. 61267 (Jan. 25, 1996); No. 43517 (Jun. 17, 1994); No. 42269 (Mar. 23, 1994); No. 34955 (Sep. 17, 1993)); *BellSouth Ex Parte* at 23 (noting that since 1993 the Commission has regularly recommended the use of inside wiring equal to or exceeding "TIA/EIA 570 category 3 standards to avoid third-party cross-talk"); GTE comments at 6. Bell Atlantic/NYNEX notes two specific advantages of BICSI's proposal: (1) installations that conform with the proposed standard are not likely to experience cross-talk when additional lines are installed, and (2) inside wiring installations that meet or exceed the proposed standard are more likely to be compatible with new high-bandwidth transmission technologies. Bell Atlantic/NYNEX comments at 2. We note that no commenters opposed adoption of these rules.

[43] *BellSouth Ex Parte* at 23; BICSI comments at 4, CSI comments at 1.

[44] *BellSouth Ex Parte* at 23; CSI comments at 1.

[45] BICSI comments at 4; TIA comments at 5.

telecommunications wiring for some time to come.[46] Finally, commenters note that the Commission's flexibility to modify its rules in response to future wire technology developments mitigates against the likelihood that a copper conductor requirement is overly restrictive.[47]

18. We note that the inside wiring requirements that we adopt in this *Order* apply only to copper conductor specifically installed for use as simple inside wiring for telecommunications service.[48] We define the scope of this regulation specifically to avoid precluding the development and use of other transmission media that may be able to function in place of twisted pair copper inside wiring. We strongly support the development and utilization of alternative customer premises transmission media, such as optical fiber, coaxial cable, electrical cabling, and wireless technology. Our intention in this action is purely to establish a minimum quality standard for what is, at present, the least costly, practically functional option that provides consumers with unrestricted ability to utilize basic telephony and other widely available communications devices.

19. Thus, we adopt these inside wiring requirements to protect consumers from the degradation of basic telephony service that can be caused by the installation of substandard wiring. We believe that this action is a necessary response to a demonstrated problem in the market as it now operates. We stress, however, that we intend these inside wiring requirements to be a minimum standard. We believe it is preferable for private industry to undertake self-regulation in this area. Industry organizations are, in all likelihood, capable of developing and maintaining customer premises transmission media standards that reflect ongoing technological advances. We observe that industry organizations, such as the Building Officials Code Administrators (BOCA), the International Conference of Building Officials (ICBO), and the Southern Building Code Congress International (SBCCI), continually update and publish model building codes, and that local building codes often reflect the content of these private industry publications.[49] Government-authorized inspectors enforce these local building codes. We believe that consumers will most benefit if standards for customer premises transmission media are similarly developed by industry organizations working in conjunction with the telecommunications industry and other interested parties, and if these standards are adopted and enforced on a local level, through existing mechanisms such as building code requirements and inspections. The advantage of industry self-regulation is that emerging technological developments in transmission media can quickly be incorporated into the applicable code, in response to consumer desire for such technology.

20. We specifically recognize the International Code Council's (ICC) current effort to create a comprehensive and coordinated international building code.[50] We understand that the ICC is now developing a

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[46] *BellSouth Ex Parte* at 23.

[47] *BellSouth Ex Parte* at 23; GTE comments at 7; TIA comments at 5.

[48] Thus, multiple-purpose copper conductor, such as electrical or coaxial cabling, that may coincidentally be used for telecommunications as well as power conducting or cable television access, as well as non-copper conductors, are not subject to simple inside wiring quality requirements.

[49] We note that there is no single uniform building code for the United States. We understand, however, that federal, state and local governments adopt rules from various sources, such as these, providing minimum requirements for building construction.

[50] The ICC is an nonprofit organization dedicated to developing a single set of comprehensive and coordinated

single international code for one- and two-family residential construction. We encourage the ICC, and similar organizations, to assume responsibility for further elaboration of the inside wire quality standards we adopt in this *Order*, and incorporate these standards into future code development activities. We also hope that the ICC or a similar organization will become the primary public forum for the establishment of material, installation, and performance requirements for customer premises transmission media. We intend that the inside wiring quality standards that we adopt in this *Order* will serve as a basis and guideline for such private sector efforts.

21. We also emphasize that because the inside wiring quality standards we adopt in this *Order* are minimum standards, they do not imply that inferior materials may be used instead of copper. Although the use of inferior, non-copper customer premises transmission media may not be explicitly precluded by these rules, we note that, pursuant to section 68.108, a carrier need not connect, or remain connected, to inside wiring that the carrier reasonably suspects will cause harm to the PSTN.[51] Under section 68.108 of our rules, carriers are afforded certain self-help privileges enabling them to take necessary actions to protect the PSTN, such as temporarily disconnecting or refusing to connect inside wiring or CPE that is likely to cause harm to the PSTN.[52] Carriers seeking to utilize those self-help privileges must notify the customer of their intended action, give the customer an opportunity to correct problems, and inform the customer of his right to complain to the Commission should the carrier act improperly.[53] We emphasize that for the purposes of section 68.108, a carrier may reasonably determine that inside wiring not conforming with the inside wiring quality requirements set forth in this *Order*, and installed after these rules go into effect, is a potential source of harm to the PSTN.[54] In such cases, the carrier should notify the customer that the inside wiring does not comply with our rules. The customer will then have the opportunity to seek redress from the party that installed the wire or, alternatively, to assume the risk of connecting to the PSTN. We expect, however, that before the new rule is effective, carriers will notify homebuilders, homebuyers, building code organizations, and other interested parties of the overall importance of installing inside wiring that meets or exceeds the enhanced standards we now require. Furthermore, we anticipate that the new inside wiring standard will be recognized in consumer complaints or claims against homebuilders, contractors, or other parties that may, for example, be liable under breach of implied warranty of merchantability or fitness for a particular purpose.

22. Finally, we intend that this regulation will benefit consumers by ensuring that their interests are protected before they encounter problems caused by poor inside wiring. We seek to ensure that consumers will not be frustrated with barriers to service or other concerns. Consequently, carriers must fully comply with the

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national building codes. The ICC founders - the Building Officials and Code Administrators (BOCA), the International Conference of Building Officials (ICBO), and the Southern Building Code Congress International (SBCCI) created the ICC to respond to technical disparities among the three sets of model codes now used for construction in the United States. *See* ICC Info Online, http://www.codes.icbo.org.

[51] 47 C.F.R. § 68.108.

[52] Carriers reasonably determining that CPE, plugs, jacks, inside wiring, etc. will cause harm to the PSTN may discontinue service, but must first notify the customer, if practicable, afford the customer the opportunity to correct the situation, and inform the customer of his or her right to bring a complaint to the Commission. 47 C.F.R. § 68.108.

[53] *Id.*

[54] *Id.*

connection requirements of 68.104 and the consumer protection provisions of section 68.108, and are subject to the filing of consumer complaints pursuant to section 68.400.

23. In the *1997 Rulemaking*, the Commission proposed adopting inside wire quality standards as a two-year interim rule. The Commission also proposed that while the two-year interim rule is in effect, the industry should "work together to solve the problems caused by poor quality inside wiring." In addition, the Commission requested comment identifying "what industry body . . . should be the entity through which members work to develop a permanent standard"[55] The vast majority of commenters responded by urging the Commission to adopt the BICSI proposal as a permanent rule, arguing that "an interim standard will not have the same impact on builders and electrical contractors"[56] and that an interim rule may be undermined by the perception that it is "merely precatory."[57] Commenters also note that an interim rule followed by a voluntary industry standard would not improve upon the current situation, since a voluntary standard currently exists, but, despite an "explicit educational push" by telephone companies,[58] the industry has so far been unsuccessful in promoting compliance.[59]

24. We agree with commenters that the inside wire quality standard should be adopted as a permanent standard. In the *1997 Rulemaking*, we requested that commenters identify the appropriate body through which the industry may work to develop a voluntary standard.[60] The record indicates that the TIA TR 41 Committee for User Premises Equipment Requirements (TIA UPED), specifically the TIA TR 41.8 Subcommittee is a suitable industry forum and an appropriate body to develop a permanent standard, as it represents a diversity of industry viewpoints.[61] The TIA UPED engineering committee, telecommunications industry representatives, and other telecommunications industry standards organizations developed ANSI/EIA/TIA-570-91, entitled "Residential and Light Commercial Telecommunications Wiring Standard," the standard proposed by BICSI for adoption as the Commission's inside wiring quality standard.[62] The record indicates that BICSI's proposal represents a voluntary, industry consensus standard, and should be adopted as a

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[55] *1997 Rulemaking*, 12 FCC Rcd at 11928.

[56] BellSouth comments at 2; *BellSouth Ex Parte* at 23; BICSI comments at 2; GTE comments at 7; TIA comments at 5. Only Bell Atlantic/NYNEX supported the Commission's adoption of the BICSI standard as an interim measure, pending development of a permanent standard. Bell Atlantic/NYNEX comments at 5.

[57] BellSouth Comments at 2.

[58] BellSouth adds that it has repeatedly contacted Home Builders Associations and made presentations at home shows to stress the importance of wire quality, and has even conducted clinics for electrical subcontractors. *BellSouth Ex Parte* at 14, Gunter Affidavit at para. 6.

[59] GTE comments at 7; TIA comments at 4; BellSouth comments at 2; *Bell South Memo* at 12, 14, Gunter Affidavit at para. 6; BICSI comments at 2 (arguing that the construction industry largely ignores the current standard, claiming that it is too costly).

[60] *1997 Rulemaking*, 12 FCC Rcd at 11928.

[61] TIA comments at 6.

[62] *Id.* at 3, 4.

permanent standard.[63] Thus, we find that BICSI's proposal represents industry consensus on the proper standards for inside wiring quality.

25. In the *1997 Rulemaking*, the Commission requested comment on its proposal that wire meeting the standards proposed by BICSI be marked at specific intervals to ensure that the markings are visible when the wiring is installed. The Commission expressed its belief that clear labeling would help the public detect and avoid problematic and poor quality inside wiring.

26. In response, commenters agree that inside wiring should be marked for performance and quality at specific intervals in order to enable easy identification of conforming wiring, even where only a small amount of wiring is exposed.[64] Commenters, however, are divided in support of marking the wire at one-foot intervals or two-foot intervals. Commenters supporting a one-foot marking interval argue that it is important that service providers are able to easily determine the type and quality of inside wiring, and only a small amount of wire is available for visual inspection at wall jacks.[65] These commenters explain that there often is less than two feet of wire available to the technician at a connection point.[66] In these situations, wire markings at two foot intervals could be hidden within building walls.[67] Other commenters, however, recommend marking the wire at two-foot intervals, reasoning that industry practice is to mark electrical cables with NEC's fire rating every two feet.[68] We establish that wire must be marked for compliance with the Commission's inside wiring quality standard at one-foot intervals, as described in section 68.213(c)(3) of our rules as amended by this *Third Report and Order*. We find that this represents a practical approach, in light of the comments of interested parties describing industry practice relating to the installation of simple inside wiring.

27. We note that commenters indicate that they will cooperate in implementation of the inside wire quality standard by educating homeowners and the building industry about the requirements and importance of conformity.[69] Commenters suggest that interested parties will lead an effort to educate communities and

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[63] *Id.* at 5. We note that commenters did not submit any alternative proposals.

[64] BellSouth comments at 3; *BellSouth Ex Parte* at 25; CSI comments at 2.

[65] BellSouth comments at 3; BellSouth reply at 4; CSI comments at 2 (recommending the marking of wire with pair and gauge information as well as the Category classification of the transmission performance, at one-foot intervals); GTE comments at 8. Although GTE initially endorsed a one foot interval, it agreed in its reply comments that a two foot interval represented a "reasonable alternative." GTE reply at 7. TIA also recommends labeling wire packaging to facilitate the identification of conforming wiring at the point of purchase. TIA comments at 6.

[66] *See e.g.*, BellSouth reply at 4.

[67] *See* BellSouth comments at 3; BellSouth reply at 4, GTE comments at 8.

[68] Bell Atlantic/NYNEX comments at 6; BICSI comments at 4.

[69] Commenters state that "even though a voluntary industry standard exists today, it does not adequately protect the . . . consumer" because of its lack of legal force. UHA comments at 1-2. *See also* GTE comments at 6; Bell Atlantic/NYNEX comments at 2; BellSouth comments at 2; *BellSouth Ex Parte* at 12.

encourage incorporation of the Commission's inside wiring quality standards into local building codes.[70] Commenters also predict that the inclusion of inside wiring quality standards into local building codes will facilitate enforcement by causing simple inside wiring installations to be subject to the same inspection and approval process as electrical wiring.[71] We agree that such efforts will amplify the benefits of our amendment of section 68.213 in this *Third Report and Order* and strongly encourage these and further efforts by interested private parties.

28. The new standard will become effective 180 days from the date of publication of this *Third Report and Order* in the Federal Register. This 180 day period should be sufficient time to permit builders, wire manufacturers, and other interested parties to manufacture and to obtain adequate inventory of category 3 wire.[72] A 180-day period also will provide carriers with sufficient time to notify their customers of this new requirement.

29. We adopt these standards with the intention that consumers will benefit from a standard requiring the use of materials that an informed consumer would probably select if given the opportunity. We expect that carriers will utilize the 180-day period before this regulation becomes effective to inform consumers, as well as builders and interested standards organizations, of the meaning and impact of the enhanced inside wiring standards that we adopt in this *Order*.

B. Gold or Gold Equivalent Standard

30. Section 68.500 of the Commission's rules specifies that the plug/jack interface should be "hard gold to hard gold," and that any non-gold contact material must be compatible with gold and provide equivalent performance.[73] In the 1997 R*ulemaking*, the Commission amended section 68.500 of our rules to incorporate TIA's standard for determining gold and gold equivalence for network interface devices. In so doing, the Commission acknowledged that the TIA standard meets the requirements for determining when a material conforms to the gold or gold equivalent standard. The Commission also requested comment on whether gold or gold equivalence is necessary in all cases and whether the standard adopted in the 1997 *Rulemaking* should be an interim standard, effective for two years until the industry adopts a permanent standard.[74] We requested identification of the industry body or bodies through which a permanent standard should be developed.[75]

31. Commenters agree that the gold or gold equivalent standard should be developed by a body composed of representatives from all industry sectors, and that the TIA TR-41 Committee is a suitable forum since

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[70] *BellSouth Ex Parte* at 7

[71] *Id.*; *see also* Bell Atlantic/NYNEX comments at 5 (noting the need for industry education efforts).

[72] *See* BICSI, Response to Request for Information in CC Docket No. 88-57, Aug. 14, 1998.

[73] 47 C.F.R. § 68.500.

[74] *1997 Rulemaking*, 12 FCC Rcd at 11928-929.

[75] *Id.*

its membership represents a diversity of viewpoints from within the industry.[76] The same commenters agree that the standard adopted in the 1997 *Rulemaking* represents industry consensus on the matter, and that the standard would be undermined by identification as an interim measure.[77] Commenters do not support rolling back the current standard, and indicate that the public interest would not be served by doing so. The growing market presence of communications equipment and technology, such as facsimiles, modems, and ISDN, that have low tolerance for transmission anomalies and interference, such as those caused by poor connectors, indicates that the public interest will be served by supporting industry initiatives that pursue improved telecommunications transmission quality. Furthermore, the current standard has been in place for more than a year and has not been the subject of any criticism.[78] Consequently, we decline to further revise section 68.500 with respect to the gold or gold equivalent standard.

C. Designation of Schools and Hospitals as Multiunit Structures

32. In the *1997 Rulemaking*, the Commission proposed that schools, hospitals and other similar facilities be considered multiunit premises under the Commission's demarcation point rule. Commenters addressing this issue argue that whether a school, hospital, or similar facility should be considered multiunit premises[79] would be more appropriately determined on a case by case basis, and that the Commission's current definition of multiunit premises is sufficient to cover any foreseeable situations.[80] We note that nothing in the record evinces difficulties in this area or indicates that case-by-case resolution of this issue would be problematic. Thus, we decline to determine that schools, hospitals, and similar facilities should be classified as multiunit premises under the demarcation point rule.

D. Information Request Response Period

33. In the *1997 Rulemaking*, the Commission requested comment identifying a reasonable time for telephone companies to respond to requests for disclosure of information regarding the wiring layout of buildings, including information about inside wiring on the customer's side of the demarcation point.[81] Commenters addressing this issue agree that thirty days is a reasonable time period to respond to customer requests for inside wiring information regarding the wiring layout of buildings, schematic diagrams, and service records. Commenters also agree that telephone companies may charge for this service, or in the alternative, may make these documents available for review and copying by the building owner.[82] Although thirty days may in fact be reasonable, the record does not indicate uncertainty or problems in this area. Thus, rather than risk a premature or

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[76] Bell Atlantic/NYNEX comments at 7; TIA comments at 7.

[77] Bell Atlantic/NYNEX comments at 7; TIA comments at 7.

[78] *BellSouth Ex Parte* at 17.

[79] *See* 47 C.F.R §§ 68.3(b), 68.215.

[80] Ameritech comments at 3-4; GTE reply at 8.

[81] *1997 Rulemaking*, 12 FCC Rcd at 11938.

[82] BellSouth comments on Initial Regulatory Flexibility Analysis at 2; GTE reply at 8.

speculative decision, we decline to identify a specific period as reasonable for the purposes of customer requests for inside wiring information. We note, however, that we may revisit this issue in the future, as circumstances warrant.

IV. PROCEDURAL MATTERS

34. Regulatory Flexibility Act Analysis. As required by Section 603 of the Regulatory Flexibility Act (RFA), 5 U.S.C. § 603 (RFA) an Initial Regulatory Flexibility Analysis (IRFA) was incorporated In the Matter of Review of Sections 68.104 and 68.213 of the Commission's Rules Concerning Connection of Simple Inside Wiring to the Telephone Network, CC Docket No. 88-57, *Order on Reconsideration, Second Report and Order and Second Further Notice of Proposed Rulemaking* in this proceeding. The Commission sought written public comments on the proposals in the *1997 Rulemaking*, including the IRFA. Appendix B of this *Third Report and Order* contains the Commission's Final Regulatory Flexibility Analysis (FRFA) in compliance with the RFA, as amended by the Contract with America Advancement Act of 1996 (CWAAA), Pub. L. No. 104-121, 110 Stat. 847 (1996).

V. ORDERING CLAUSES

35. ACCORDINGLY, IT IS ORDERED, pursuant to the authority contained in Sections 1, 4(i) and (j), 11, 201-205, 218, 220, 256, and 405 of the communications Act as amended, 47 U.S.C. sections 151, 154(i), 151(j), 161, 201-205 and 218, 220, 256, and 405, and 5 U.S.C. sections 552 and 553, this Third Report and Order and Order on Reconsideration IS ADOPTED, and Part 68 of the Commission's Rules IS AMENDED as set forth in the attached Appendix A.

36. IT IS FURTHER ORDERED that the rule amendments set forth in Appendix A SHALL BE EFFECTIVE 180 days after publication of this Order in the Federal Register.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas
Secretary

APPENDIX A
AMENDED RULES

Title 47 of the Code of Federal Regulations Part 68 is amended as follows:

Part 68 - CONNECTION OF TERMINAL EQUIPMENT TO THE TELEPHONE NETWORK

1. The authority citation for Part 68 continues to read as follows:

AUTHORITY: Sections 1, 4, 5, 201-5, 208, 215, 218, 226, 227, 303, 313, 314, 403, 404, 410, 522 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154, 155, 201-5, 208, 215, 218, 226, 227, 303, 313, 314, 403, 404, 410, 522.

2. Section 68.213 is amended by revising paragraph (c) as follows:

§ 68.213 Installation of other than "fully protected" non-system simple customer premises wiring.

* * * * *

(c) Material requirements.

(1) For new installations and modifications to existing installations, copper conductors shall be, at a minimum, solid, 24 gauge or larger, twisted pairs that comply with the electrical specifications for Category 3, as defined in the ANSI EIA/TIA Building Wiring Standards.

(2) Conductors shall have insulation with a 1500 Volt rms minimum breakdown rating. This rating shall be established by covering the jacket or sheath with at least 15 cm (6 inches) (measured linearly on the cable) of conductive foil, and establishing a potential difference between the foil and all of the individual conductors connected together, such potential difference gradually increased over a 30 second time period to 1500 Volts rms, 60 Hertz, then applied continuously for one minute. At no time during this 90 second time interval shall the current between these points exceed 10 milliamperes peak.

(3) All wire and connectors meeting the requirements set forth in subparagraphs (1) and (2) above shall be marked, in a manner visible to the consumer, with the symbol "CAT 3" or a symbol consisting of a "C" with a "3" contained within the "C" character, at intervals not to exceed one foot (12 inches) along the length of the wire.
* * * * *

APPENDIX B

FINAL REGULATORY FLEXIBILITY ANALYSIS

1. As required by the Regulatory Flexibility Act (RFA),[83] the Commission has prepared this Final Regulatory Flexibility Analysis (FRFA) of the expected significant economic impact on small entities by the policies and rules proposed in the Order on Reconsideration, Second Report and Order, and Second Notice of Proposed Rulemaking. *See* 5 U.S.C. § 603(a).

A. Need for, and Objectives of, the Proposed Rules

2. The Commission, in compliance with section 1 and Title II of the Communications Act of 1934, as amended in the Telecommunications Act of 1996, promulgates rules in this Third Report and Order by amending section 68.213 of its rules to establish minimum standards for simple inside wiring to be connected to the public switched telecommunications network. This rule change will benefit consumers and small businesses by ensuring that telecommunications wiring in new installations will be capable of accommodating clear telecommunications and digital transmissions. Consumers and small businesses will also benefit from the decreased necessity for the expensive replacement of poor quality simple inside wiring, as may be required to accommodate extra lines for additional telephones, personal computers, fax machines, and ISDN or xDSL services. Furthermore, this rule change will staunch the increasing incidence of cross-talk and the risk of network harm associated with the installation of poor quality inside wiring.

B. Summary of Significant Issues Raised by the Public Comments in Response to the IRFA:

3. We have reviewed the general comments to identify issues that may have significant economic impact on small businesses, and find that not issues were raised in direct response to the IRFA. Furthermore, all commenters addressing the issue of amending Part 68 our rules to provide enhanced standards for inside wiring supported the proposed amendment.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

4. The RFA directs the Commission to provide a description of and, where feasible, an estimate of the number of small entities that will be affected by the proposed rules. The RFA defines the term "small entity" as having the same meaning as the terms "small business," "small

[83] *See* 5 U.S.C. § 603. The RFA *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract with America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

organization," and "small business concern" under section 3 of the Small Business Act.[84] A small business concern is one that (1) is independently owned and operated; (2) is not dominant in its field of operation, and (3) satisfies any additional criteria established by the SBA.[85] SBA has defined a small business for Standard Industrial Classification (SIC) category 4813 (Telephone Communications, except Radiotelephone) to be a small entity when it has no more than 1,500 employees.[86] We first discuss generally the total number of small telephone companies falling within both of these SIC categories. We then discuss the number of small businesses within the two subcategories, and attempt to refine further those estimates to correspond with the categories of telephone companies that are commonly used under our rules. Finally, we discuss the number of electrical contractors that may be affected by the proposed rules, and the extent to which they may be affected.

5. Consistent with our prior practice, we here exclude small incumbent local exchange carriers (LECs) from the definition of "small entity" and "small business concern." While such a company may have 1,500 or fewer employees and thus fall within the SBA's definition of a small telecommunications entity, such companies are either dominant in their field or operation or are not independently owner and operated. Out of an abundance of caution, however, for regulatory flexibility analysis purposes, we will consider small incumbent LECs within this present analysis and use the term "small incumbent LECs" to refer to any incumbent LEC that arguably might be defined by the SBA as a small business concern.[87]

6. Total Number of Telephone Companies Affected. Many of the decisions and rules adopted herein may have a significant effect on a substantial number of the small telephone companies identified by the SBA. The United States Bureau of the Census ("the Census Bureau") reports that, at the end of 1992, there were 3,497 firms engaged in providing telephone services, as defined therein, for at least one year.[88] This number contains a variety of different categories of carriers, including local exchange carriers, interexchange carriers, competitive access providers, cellular carriers, mobile service carriers, operator service providers, pay telephone operators, PCS providers, covered SMR providers and resellers. It seems certain that some of those 3.497 telephone service firms may not qualify as small entities or small incumbent LECs because they are not "independently owned and operated."[89] For example, a PCS provider that is affiliated with an interexchange carrier having more than 1,500 employees would not meet

[84] *See* 5 U.S.C. § 601(3) (incorporating the definition of "small business concern" in 5 U.S.C. § (632).

[85] 15 U.S.C. § 632.

[86] *See* 13 C.F.R. §§ 121.201, (SIC 3661).

[87] *See* 13 C.F.R. § 121.201 (SIC 4813).

[88] United States Department of Commerce, Bureau of the Census, *1992 Census of Transportation, Communications, and Utilities: Establishment and Firm Size*, at Firm Size 1-123 (1995) (*1992 Census*).

[89] 15 U.S.C. § 632(a)(1).

the definition of a small business. It seems reasonable to conclude, therefore, that fewer than 3,497 telephone service firms are small entity telephone service firms or small incumbent LECs that may be affected by this Third Report and Order.

7. Wireline Carriers and Service Providers. SBA has developed a definition of small entities for telephone communications companies other than radiotelephone (wireless) companies. The Census Bureau reports that there were 2,321 such telephone companies in operation for at least one year at the end of 1992.[90] According to the SBA's definition, a small business telephone company other than a radiotelephony company is one employing fewer than 1,500 persons.[91] All but 26 of the 2,321 non-radiotelephone companies listed by the Census Bureau were reported to have fewer than 1,000 employees. Thus, even if all 26 of those companies had more than 1,500 employees, there would still be 2,295 non-radiotelephone companies that might qualify as small entities or small incumbent LECs. Although it seems certain that some of these carriers are not independently owned and operated, we are unable at this time to estimate with greater precision the number of wireline carriers and service providers that would qualify as small businesses under the SBA's definition. Consequently, we estimate that there are fewer than 2,295 small entity telephone communications companies other than radiotelephone companies that may be affected buy the decisions and rules adopted in this Third Report and Order.

8. Local Exchange Carriers. Neither the Commission nor SBA has developed a definition of small providers of local exchange services (LECs). The closest applicable definition under SBA rules is for telephone communications companies other than radiotelephone (wireless) companies. The most reliable source of information regarding the number of LECs nationwide of which we are aware appear to be the data that we collect annually in connection with the Telecommunications Relay Service (TRS). According to our most recent data, 1,347 companies reported that they were engaged in the provision of local exchange services.[92] Although it seems certain that some of these carriers are not independently owned and operated, or have more than 1,500 employees, we are unable at this time to estimate with greater precision the number of LECs that would quality as small business concerns under the SBA's definition. Consequently we estimate that there are fewer than 1,347 small incumbent LECs that may be affected by the decisions and rules adopted in this Third Report and Order.

9. Manufacturers of Telecommunications Equipment. The Commission has not developed a definition for small manufacturers of telecommunications terminal equipment. The closest applicable definition under SBA rules is for manufacturers of telephone and telegraph

[90] *1992 Census, supra*, at Firm Size 1-123.

[91] 13 C.F.R. § 121.201, (SIC 4812).

[92] Federal Communications Commission, Common Carrier Bureau, Industry Analysis Division, *Telecommunications Industry Revenue: TRS Fund Worksheet Data*, Tbl. 21 (Average Telecommunications Revenue Reported by Class of Carrier) (Dec. 1996) (*TRS Worksheet*).

apparatus (SIC 3661) which defines a small manufacturer as one having 1,000 or fewer employees.[93] According to 1992 Census Bureau data, there were 479 such manufacturers, and of those, 436 had 999 or fewer employees, and seven had between 1,000 and 1,499 employees.[94] Consequently, we estimate that there are fewer than 443 small manufacturers of telecommunications terminal equipment that may be affected by the decision and rules proposed in this Third Report and Order.

10. Electrical Contractors. Electrical Contractors in this category (SIC 1731) are primarily engaged in electrical work at the construction site. This category includes establishments engaged in the installation of telecommunication equipment, sound equipment, burglar alarms, fire alarms, and telephones. According to the 1997 Economic Census there are 61, 414 electrical contractors. Of that number, 61,405 electrical contractors have fewer than 1000 employees, and 61,375 have fewer than 500 employees.[95] Consequently, we estimate that up to 61,405 small electrical contractors may be affected by the decision and rules proposed in this Third Report and Order.

11. Telecommunications Wiring Manufacturers. Manufacturers in this category (SIC 3357B) are primarily engaged in manufacturing telephone and telegraph wire and cable. This category includes establishments engaged in the manufacture of inside wiring cable. According to the 1997 Economic Census there are 28 telephone and telegraph wire and cable manufacturers, of which 18 are involved in the manufacture of inside wiring cable. The Small Business Administration has determined that manufacturing establishments in this category with few than 750 employees qualify as small manufacturers.[96] Consequently, we estimate that no more than 18 inside wiring cable manufacturers may be affected by the decision and rules proposed in this Third Report and Order.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements.

12. Reporting. None.

13. Recordkeeping. It appears that recordkeeping would not increase or significantly decrease as a result of our affirmation and clarification of our demarcation point definition gold and gold equivalence standard, and modification of our inside wiring material requirements

[93] *Id.*

[94] 1992 Economic Census, Industry and Employment Size of Firm, Table 1D (data prepared by U.S. Census Bureau under contract to the U.S. Small Business Administration).

[95] 1997 Economic Census, Industry Series, Construction, Electrical Contractors, U.S. Census Bureau, U.S. Department of Commerce Economics and Statistics Administration, Document EC97C-2353A, June 1999, Table 5.

[96] 13 C.F.R. §§ 121-201.

rules. We anticipate that no new skills are necessary to comply with this amendment by telephone companies, wire maintenance and installation companies, and wire manufacturers.

14. Other Compliance Requirements. None.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

15. We have considered the effect of enhanced wiring requirements on the building industry in general, and specifically with regard to the following entities: General Contractor, Single Family Houses (SIC 1521); General Contractor, Residential Buildings, Other than Single Family (SIC 1522); General Contractors, Nonresidential Buildings (SIC 1542), and Building Construction Trade Contractors, Electrical (SIC 1731), and find that these rule modifications will not cause significant negate impact. To the extant that enhanced wire quality standards for simple inside wiring may adversely affect small building contractor, it appears to be an insignificant cost in comparison to the value and public interest in the elimination of cross-talk interference to the service of third party customers that is directly attributable to the use of low-quality telephone inside wiring.

F. Federal Rules that Overlap, Duplicate, or Conflict with These Rules

16. None.

G. Report to Congress

17. The Commission shall send a copy of this Final Regulatory Flexibility Analysis, along with this Report and Order, in a report to Congress pursuant to 5 U.S.C. § 801(a)(1)(A). A copy of this FRFA will also be published in the Federal Register.